METHOD OF SCREENING FOR AGENTS INHIBITING CHLORIDE INTRACELLULAR CHANNELS

ABSTRACT OF THE DISCLOSURE

[00121] The present invention isolates and characterizes the *exc-4* gene of *C. elegans*, and identifies *exc-4* as an orthologue of the human CLIC family of chloride intracellular channels. Accordingly, a nucleic acid having the sequence of SEQ ID NO.: 1 is disclosed, as well as recombinant vectors and host cells comprising the nucleic acid sequence of SEQ ID NO.: 1. Further, a number of screening methods are disclosed to identify putative agents that inhibit vertebrate, and preferably human, CLICs using *C. elegans* and *exc-4* inhibition as a loss-of-function model for CLIC activity. Also disclosed is a method of determining whether a specific member of the CLIC gene family is involved in tubulogenesis, where the rescue of a *C. elegans exc-4* excretory cell phenotype *via* expression of a transgenic CLIC gene of interest indicates that the CLIC gene of interest is involved in tubulogenesis. Finally, a method is disclosed of identifying putative vertebrate, and preferably human, CLIC inhibitors using transgenic *C. elegans exc-4* mutant embryos, where expression of the transgene yields a CLIC product that rescues the *exc-4* mutant phenotype. Agents of interest resulting in a reversionary *exc-4* mutant phenotype are putative agents that inhibit CLIC expression or function.